

REMARKS

The Office Action dated June 29, 2006, has been received and carefully noted. The above amendments and the following remarks are submitted as a full and complete response thereto.

By this Amendment, claim 1 has been amended. No new matter has been added. The amendments to the claims do not narrow the scope of the claims. Claims 1-12 are pending and respectfully submitted for consideration.

Rejection of Claims 1-12 Under 35 U.S.C. §103(a)

Claim 1 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Iijima et al. (US 2001/0008309) in view of Taniguchi et al. (US 6404062). This rejection is respectfully traversed.

It is respectfully submitted that the combination of Iijima et al. and Taniguchi et al. are insufficient to render the claimed invention unpatentable.

As shown in FIG. 3 of Iijima et al. and in paragraph [0102], Iijima et al. disclose a core substrate 201, such as a ceramic substrate or a glass epoxy substrate. On both surfaces of the core substrate 201 are formed interconnection layers 203 by pattern copper plating films or copper foils provided thereon. Through holes 201a penetrate core substrate 201. A through-hole copper plating film 201b is formed on the inner wall of each of the through holes 201a and electrically connects the

interconnection layers 203 formed on both surface of the core substrate.

Examiner viewed the core substrate 201 in Iijima et al. as the “semiconductor substrate” in claim 1. See Office Action, p. 2, para. 3. It is clear that Examiner gave a wrong claim construction to the “semiconductor substrate” limitation. In the Specification of the Application and the Claims, the terms “semiconductor substrate” should be considered its plain and ordinary meaning. As a result, “semiconductor substrate” plainly means a substrate composed of a semiconductor material.

Throughout Iijima et al, the core substrate 201 is never mentioned to be made of semiconductor. Contrarily, the core substrate 201 is only a ceramic substrate or glass epoxy substrate. See Iijima et al, para. [0102]. It is clear to one of ordinary skill in the art that ceramic or glass epoxy does not fall within the catalog of semiconductor. Therefore, relying on the wrong claim construction about the “semiconductor substrate” limitation, Examiner’s fact finding that the core substrate 201 in Iijima et al. is the semiconductor substrate in Claim is unsupported by substantial evidence.

Moreover, Iijima et al. fails to teach a plurality of conductive plugs penetrating through the semiconductor substrate and the insulating layer and electrically connecting to the second bonding pads. Here, Applicants provide two reasons to explain why this finding does not reach the “conductive plug” limitation in the claimed invention.

First, since Applicants have shown that “a core substrate 201” in Iijima et al. is not “a semiconductor substrate” in the claimed invention, Examiner did not find a substantial fact that “a plurality of conductive plugs penetrating through said semiconductor substrate.”

Secondly, Applicants add “through” after “penetrating” to clarify the feature of the claimed invention, and the feature is that conductive plugs penetrates through an insulating layer. Therefore, since Examiner did not find in Iijima et al. that “conductive plugs 201a, 201b penetrates through the insulating layer 202.” The “conductive plugs” limitation in the claimed invention is a missing element after Examiner’s facts finding.

Tangiguchi et al. discloses a MCM structure, where a plurality of semiconductor chips 31A and 31B (two in this embodiment) are carried on a printed wiring substrate 32A, as shown in FIG. 13.

Furthermore, the claimed invention discloses that a plurality of chips on said second surface and electrically connecting to said third bonding pads. The second surface is a surface of semiconductor substrate, and the third bonding pads are on the second surface, and the plurality of chips is connected on the substrate. However, if Iijima et al and Tangigchi et al. are combined, the semiconductor chips 31A, 31B in Tangiguchi et al. have to be connected on the “interconnection layers 203” in Iijima et al. rather than on the substrate in the claimed invention. If the plurality of chips is expected to be connected on a surface of substrate, upper interconnection layers 203 in Iijima et al. have to be

removed. It destroys the purpose of Iijima et al. Therefore, the combination of Iijima et al. and Taniguchi et al. still fails to teach the feature "a plurality of chips on said second surface and electrically connecting to said third bonding pads."

It is respectfully submitted that the references applied by the Examiner, either alone or in combination, fail to teach or suggest the structure of independent claim 1. Reconsideration and withdrawal of the 35 U.S.C. §103(a) are respectfully requested.

Claim 2-3 and 11 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Iijima et al. (US 2001/0008309) in view of Taniguchi et al. (US 6404062) and in further view of Tsunashima (US 6383837). This rejection is respectfully traversed.

Claim 4-6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Iijima et al. (US 2001/0008309) in view of Taniguchi et al. (US 6404062) and in further view of Juskey et al. (US 6353453). This rejection is respectfully traversed.

Claim 4-6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Iijima et al. (US 2001/0008309) in view of Taniguchi et al. (US 6404062) and in further view of Juskey et al. (US 6353453). This rejection is respectfully traversed.

Claim 8-10 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Iijima et al. (US 2001/0008309) in view of Taniguchi et al. (US 6404062) and in further view of Peterson et al. (US 6384473).

This rejection is respectfully traversed.

Claim 12 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Iijima et al. (US 2001/0008309) in view of Taniguchi et al. (US 6404062) and in further view of Hirano et al. (US 5625298).

This rejection is respectfully traversed.

It is respectfully submitted that when the independent claim 1 is patentable, its dependent claims 2-12 is also patentable. Reconsideration and withdrawal of the 35 U.S.C. §103(a) are respectfully requested.

Conclusion

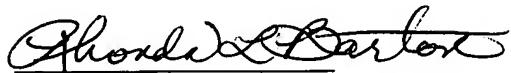
The Applicants respectfully submit that claim 1 is allowable. Claims 2-12 depend from claim 1. The Applicants further submit that each of these claims incorporate the patentable aspects thereof, and are therefore allowable for at least the same reasons as discussed above. Accordingly, the Applicants respectfully request withdrawal of the objections/rejections, allowance of claim 1-12 and the prompt issuance of a Notice of Allowability.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that

may be due with respect to this paper, may be charged to counsel's
Deposit Account No. 01-2300, **referencing Attorney Dkt. No.**
025796-00014.

Respectfully submitted,



Rhonda L. Barton
Attorney for Applicants
Registration No. 47,271

Customer No. 004372

ARENT FOX PLLC
1050 Connecticut Avenue, N.W., Suite 400
Washington, D.C. 20036-5339
Tel: (202) 857-6000
Fax: (202) 638-4810

RLB/wbp

Enclosure: Petition for Extension of Time (one month)